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ABSTRACT

Three major accomplishments of the computer revolution on university campuses are: an increase in the quantity of academic work; improvement in the quality of academic work; and a change in the nature of academic work. However, three main impediments to successful computer integration still exist: (1) the information battle--how to obtain reliable information about hardware and software; (2) the support battle--personnel, funds, and equipment needed to improve computer resources; and (3) the rewards battle--how to get adequate academic recognition for faculty members who choose to work and/or publish in nontraditional ways. Two charts are appended which indicate how 517 computers, awarded in October 1985 to personnel at the University of Texas at Austin, will be used. (Author/JB)

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Wayne Danielson

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Panel Talk
EDUCOM '85
Oct. 3, 1985
Austin, Texas

A REPORT FROM THE BARRICADES OF THE COMPUTER REVOLUTION ON CAMPUS

Nearly everyone seems to think we are in the middle of a revolution in academic computing. On the computer-intensive campuses, change is taking place at an unbelievable pace. Courses that have remained unchanged for decades are being reworked. New courses are being added. Labs are being restructured. Even the libraries, stout champions of the status quo, are deep into mysterious experiments with terminals, on-line catalogs and the like. Generally speaking, revolutions are fun -- at least for those doing the revolting -- and I'm glad to be among those storming the barricades of academic tradition. But revolutions are confusing. And probably the most difficult thing for anyone in the middle of one to do is analyze what is happening. Analysis comes later -- after the smoke blows away and the historians move in.

So, I hope you realize that I speak to you today as one looking up briefly from the struggle, mainly bewildered, but trying to discern how the battle is tending. My particular perspective comes from long service on the Faculty Computer Committee at the University of Texas at Austin and from short service -- 18 months

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-- as director of PROJECT QUEST, the University's effort to increase the innovative use of microcomputers in teaching and research. Since PROJECT QUEST was announced April 4, 1984, along with news of a major gift of microcomputers and other support from the IBM Corporation and later Apple Computer, Inc., the PROJECT QUEST committee has received an average of a proposal a day from the UT faculty for microcomputer projects, an indication, I think, of the amazing reach of the revolution.

All areas of the University are taking part, but the major participants are Natural Sciences, Engineering, Liberal Arts (in a somewhat surprising third place) and Business Administration. As of October 1, 190 projects have been funded and 491 microcomputers have been installed, not counting the 70 loaners we have out to encourage proposal writing. Although machines are granted either for teaching or research, 68 percent of all proposals made and grants awarded have been for teaching. On the microcomputer project alone, we estimate that the number of faculty members involved this semester is 472, the number of graduate students is 1,180 and the number of undergraduates is 5,664.

At the same time the microcomputer project is proceeding, the university is busy acquiring a supercomputer, upgrading the academic mainframes, improving the campus network, installing minicomputers, and, for the first time, providing electronic access to its main library holdings.

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What positive academic changes are being brought about by the computer revolution on campus?

I see three major accomplishments:

1. The quantity of academic work is increasing. There is a general rise in student and faculty efficiency and productivity. A course that previously managed to teach FORTRAN in one semester, now teaches FORTRAN and PASCAL. Students who used to write ten stories a semester on typewriters, now use word processors and write twenty. More time in classes and laboratories is being spent productively rather than in mindless routine.

2. The quality of academic work is improving. The quantity of work produced in the University is of some importance, but the quality of work produced is vital. Work of a higher quality is being done. In the humanities, better translations are being made with the aid of ingenious computerized dictionaries. In engineering, better charts and graphs enable students to understand more readily the outcomes of complex experiments. In business, simulations provide students with the opportunity to run imaginary companies under realistic conditions, letting students know not only how it's done, but how it feels to be responsible for enormous budgets and enormous payrolls.

3. The nature of academic work is changing. With the advent of

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intensive computing on campus, labs are returning to areas where only lectures prevailed. Science courses for non-majors are a good example. Labs -- computer labs -- are coming back, and courses are improving as a result. Self-paced courses now go beyond reading and exam taking and add computer lab sessions to demonstrate principles. The principle of learning by doing, so characteristic of American higher education in the past, is being reaffirmed.

Not all battles of the computer revolution on campus have been won. Many momentous ones are still in progress and the outcome is far from certain. Among these I would note these three:

(1) The information battle. Getting good information on computer hardware and software is terribly difficult. In spite of all efforts, we often don't have the facts we need to make good choices. On some afternoons in the faculty computer committee, faced with having to make a choice among typically fuzzy and ill-defined alternatives, I have often thought the committee might as well decide by slaying an owl and examining its liver. At least it would enliven the meeting. We need more information of all kinds -- more conferences like this one, more seminars, more short courses, more newsletters, more books, more bulletin boards, more national and campus networks, more expert systems.

(2) The support battle. Money for capital expenditures is

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important, but so is money for human beings. If the computer revolution on the American campus is to have a happy outcome, new ways must be found to find wise human beings to participate. This means time off for good people to develop course materials and new research techniques. This means a cadre of consultants on campus to help students and faculty solve problems. This means technical people to help set up and maintain the expensive systems we so eagerly install. On too many computer-intensive campuses, the unwritten motto is -- "Millions for equipment, but not one cent for staff."

(3) The rewards battle. The young people on our campuses who can do the most for the computer revolution are often understandably reluctant to join in because of the antiquated reward structure of the university. In case you hadn't noticed, publish or perish is still the rule. And publish, dear assistant professor, means in print in scholarly books and journals; publishing on a floppy disk just doen't count. As a result, it is quite possible that some of the most interesting and valuable intellectual work of this decade will go unrewarded and unrecognized by our universities. Those gray-haired ones among us, whose tenure is assured and whose creative impulses are now pleasantly quiescent, need to rouse up and help our younger colleagues in this struggle for recognition.

The strange flip side of the reward coin is that while many universities are slow to grant recognition for creative work with

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computers, they are quick to demand a share of any outside economic reward the teacher or researcher may earn from his work. While it is a rare university that insists on having part of a professor's book royalties, the same cannot be said of his computer software royalties. If, as I suspect, the future of the university rides as much with its software as with its books, faculty members and administrators need to end the rewards battle as soon as possible.

As I said at the beginning, when you are in a revolution, it is hard to tell what is really going on. The main events I see now are probably only minor skirmishes. No doubt it will be years before we understand what really happened. But for now, from the barricades, this is the way it seems to me.

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A REPORT
FROM THE BARRICADES OF THE COMPUTER REVOLUTION
ON CAMPUS

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MACHINES AWARDED (10/2/85)
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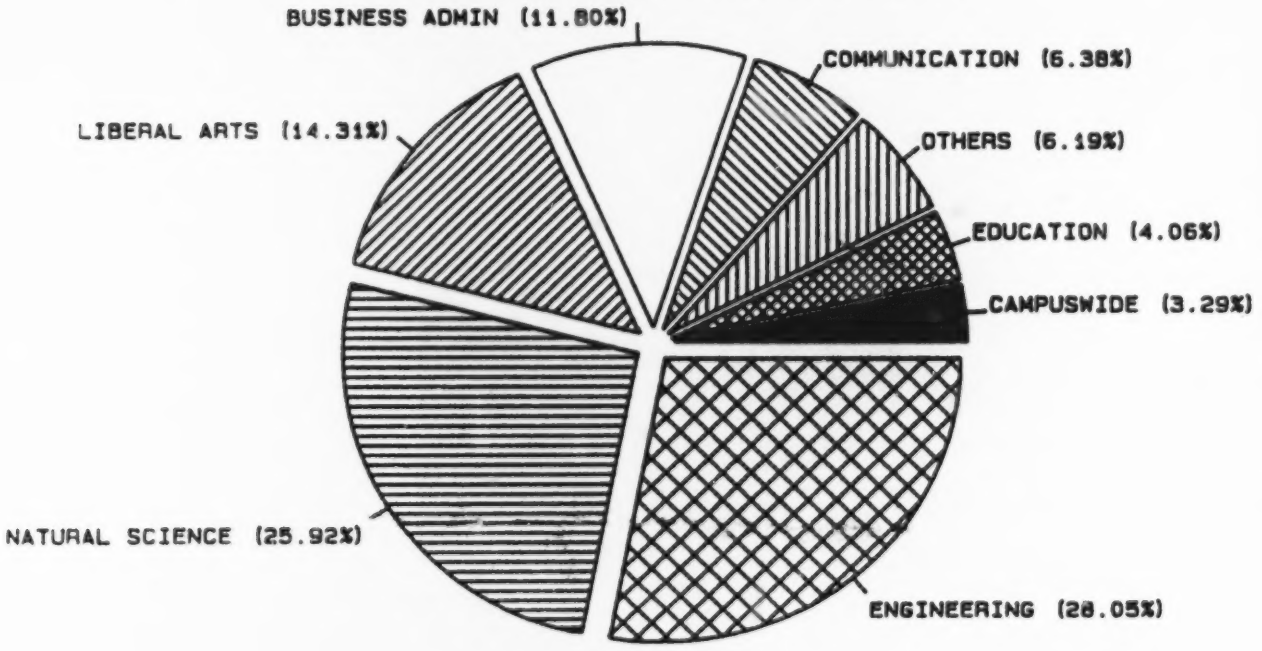

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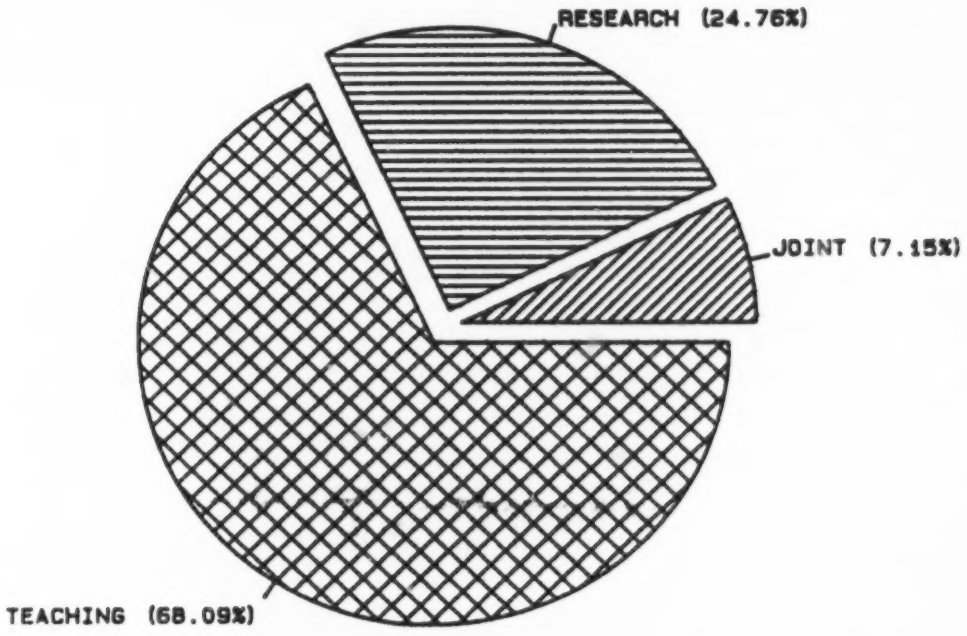

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MAJOR ACCOMPLISHMENTS

* THE QUANTITY OF ACADEMIC WORK IS INCREASING

* THE QUALITY OF ACADEMIC WORK IS IMPROVING

* THE NATURE OF ACADEMIC WORK IS CHANGING

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BATTLES STILL RAGING

* THE INFORMATION BATTLE

* THE SUPPORT BATTLE

* THE REWARDS BATTLE

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